European Commission

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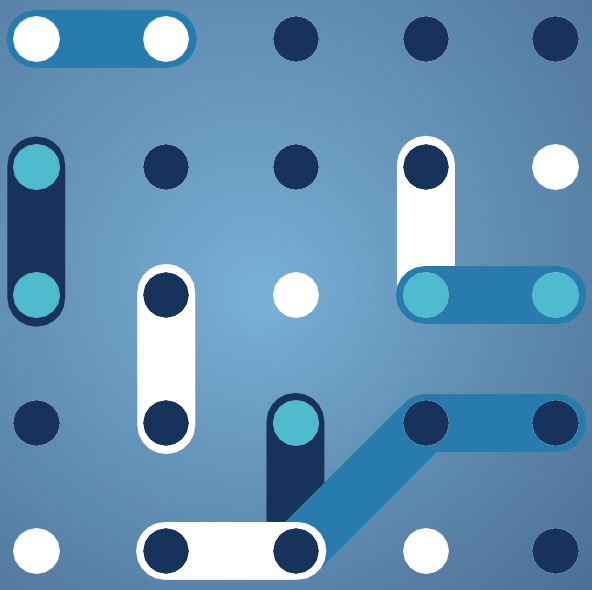
Lessons learnt on citizen engagement

Case study #8



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AUTHORS

Julie Saccomano, *Dowel Innovation*

Stéphanie Petit, *Dowel Innovation*

SUPPORT FROM THE BRIDGE SECRETARIAT

Martin Bracken, CLERENS, BRIDGE Secretariat

Niclette Kampata, ZABALA, BRIDGE Secretariat

Marcos Jareño, ZABALA, BRIDGE Secretariat

Agnieszka Gierej, ZABALA, BRIDGE Secretariat

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Directorate-General for Energy
Directorate B – Just Transition, Consumers, Energy Efficiency and Innovation Unit B5 – Innovation, Research, Digitalisation, Competitiveness

Contact: Cristiana Marchitelli

E-mail: Cristiana.MARCHITELLI@ec.europa.eu

European Commission

B-1049 Brussels

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Directorate General for Energy 2023

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1. Engaging citizens to achieve a shift in energy demand

1.1 Context

The engagement of citizens has for objective to shift from a model of passive to active consumer. It should be differentiated from a consumer at large: indeed, this report will not refer to commercial, industrials or public users but only citizen[1].

Most research projects now include at least some tasks that aim at exchanging and engaging with citizens, to ensure their acceptance and uptake of the project's results. The objective and strategies of the engagement need to be well thought of from the proposal stage, to ensure valuable exchanges and feedbacks.

This case study aims at collecting and highlighting lessons learnt of a sample of BRIDGE projects to facilitate citizen engagement in future research projects. It addresses the BIRDGE community and project consortia, as well as any stakeholder interested in knowing how projects can handle the challenge of citizen engagement.

This report does not aim at assessing the activities conducted by the BRIDGE projects. The latest BRIDGE report "Exploration of citizen engagement methodologies in European R&I projects 3.0", from the Consumer Citizen & Engagement Working Group, offers a selection of good practices and "most appropriate approaches" on specific research goals set by the Working Group.

1.2 Benefits

Several advantages are expected from the engagement of citizens in European projects, and especially in energy related projects:

- Ensure the development of technologies that answer their customers' needs
- Raise awareness and citizens interest on current energy challenges
- Facilitate the uptake of new technologies
- Improves performances and give businesses a competitive advantage
- Strengthen customer-company relationship

The benefits expected from technological solutions are indeed often interrelated with the use citizens have of them, which means that projects may not reach their expected impacts if citizens are not well engaged.

1.3 Challenges addressed in this case study

The engagement of citizens is dependent on many socio-economic drivers (location, gender, age, education, income etc.) and on the experience and relationships of the project partners. It may therefore be complicated to provide insights and references that can be applicable to a large variety of projects/cases. The work conducted in the four analysed projects has therefore been gathered to answer to the main three following questions:

- *How to define engagement's objectives and target the right citizen?*
- *How to build a robust commitment of citizen?*

[1] Hestia, deliverable D2.1 "Criteria and guidelines for user recruitment and engagement process", p.16

- *How to assess the citizen engagement?*

The next pages illustrate how some of the BRIDGE projects contribute to tackling these issues.

2. Setting up the conditions to engage citizens in a project

This case study focuses on three main building blocks that are investigated by a selection of H2020 funded projects:

DEFINING OBJECTIVES AND TARGETING CITIZENS. This block includes good practices on who to target and how to prepare the consortium partners before engaging with the citizen.

ENSURING ROBUST CITIZEN'S COMMITMENT. This block explores good practices on how to appeal citizen in participating in a project, including ideas of animation material for workshops.

ASSESSING CITIZENS ENGAGEMENT. This block addresses the need for KPIs and tools to assess the involvement of the citizen in the project, and their contributions.

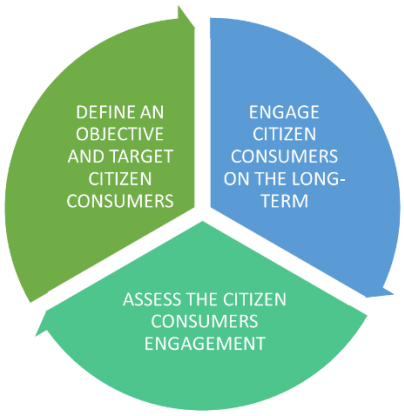


Figure 1:
The three building blocks to explore citizen engagement

This case study focuses on four H2020 projects that address those buildings blocks complementarily. The selection of projects was made according to two main criteria: (i) the project maturity (recently completed or close to completion) and (ii) their priority topics and expertise.

The projects showcased in this case study cover a variety of topics related to local renewable energy production, energy flexibility and energy markets and have analysed and tested various strategies of engagement. BRIGHT and ACCEPT have developed frameworks describing stages of transition while HESTIA focuses on smart tools. For INVADE, interesting lessons learned on citizen engagement were also identified when preparing the Vehicle-to-Grid case study.[2]

Nov 2020-Oct 2023

BRIGHT maximises the potential of Demand-Response (DR) at the consumer level, harnessing the potential of blockchain technology to deliver data-driven cross-stakeholder and cross-domain energy fingerprinting services. Specifically, it will design a co-creation process that lifts individual consumers to centre stage in order to deliver a DR that is multi-layered, community-centred, cross-domain, adaptable and multi-timescale. It will also combine user experience design driven by social science for user behaviour motivations that may include monetary and non-monetary incentives. Moreover, BRIGHT is focused on the use of digital twins for improved consumer predictability as well as artificial intelligence data-driven energy and non-energy services.

INVADE proposed to deliver a Cloud based flexibility management system integrated with EVs and batteries empowering energy storage at mobile,

[2] Please note that other projects dealing with citizen engagement were previously highlighted in the case study on Energy Communities.

Jan 2017-Dec 2019

distributed and centralised levels to increase renewables share in the smart distribution grid. Novel business models and extensive exploitation activities will be able to tread the fine line between maximizing profits for a full chain of stakeholders and optimizing social welfare while contributing to the standardization and regulation policies for the European energy market.

TARGET AND PREPARE | VALIDATE AND ASSESS

Jan 2021-Jun 2024

ACCEPT project intends to deliver a digital toolbox that allows energy communities to offer innovative compound (energy and non-energy) services to their members, as well as third parties, and access revenue streams that can financially support their functions and secure their sustainability and effectiveness. The latter is achieved by enabling energy communities to participate in demand response markets.

The project also aims to understand the main incentives and drivers of citizens and energy communities for actively participating in the energy transition and deliver a citizen engagement methodology that stimulates citizen participation in the energy system and community flourishing.

TARGET AND PREPARE | ENGAGE ON THE LONG TERM | VALIDATE AND ASSESS

Nov 2020-Oct 2023

Hestia develops a mix of Technological, Innovative and Social Sciences & Humanities approaches to improve the management and use of energy by and for residential consumers.

The project aims to develop a cost-effective solution for the next-generation demand-side response services by encouraging residential consumers to engage in flexibility sharing and grid balancing. User-personalised services will help lay the foundation for an open marketplace and new grid reality.

TARGET AND PREPARE | ENGAGE ON THE LONG TERM | VALIDATE AND ASSESS

3. How to define your objectives and target the right citizens?

This section highlights the importance of a strong preparation, before directly involving citizens. It details some of the projects' solutions to target the right citizens to participate in the project (how to measure the citizens' interest, what sample's size to target and what are the specificities the citizens need to have), and the importance to prepare the project partners for the animation of the citizen communities in the different use cases.

3.1 Define your objective and train your consortium partners to interact with the citizens

Consortia engaging with citizens are advised to be very clear on why they want to interact with citizens, and what should be the outcomes they want to take away from these interactions. This discussion should be held during the proposal development, at the project's kick off meeting, and as often as needed.

Furthermore, it is important to ensure the same level of pre-information/ training for all partners that are responsible for citizen engagement activities. This can be done through the incentive to use specific KPIs to measure the citizens engagement (as done in the **INVADE** project), or through a dedicated workshop.

- A **remote capacity building workshop for ACCEPT partners** was held with the objective to increase the **understanding and knowledge within the consortium** of how to approach citizen engagements and how to understand an energy community and the challenges associated with creating and participating in a community. The workshop was designed to address two topics:
  - *How to define an energy community* and
  - *How to address issues and barriers that arise when working with energy communities on projects such as ACCEPT.*

  These two topics were addressed over three tasks:
  - Defining 'Community';
  - Challenges and mitigation strategies associated with building an energy community;
  - Solution prioritisation for addressing disengagement.

3.2 Choose your target groups wisely

The first step to ensure citizen engagement, is to address the right target groups, which means citizens with enough interest and influence in the project.

- In some of the projects' use cases (e.g. the **1st Business Use Case of BRIGHT**[3]), **the citizens addressed are already part of a cooperative, which is a partner in the project**. In that case, it is easier to know who to target, as we know that these citizens are already interested in the project's topic and engaged in related activities. Furthermore, chances are that the project partner already know them personally, and in most cases they will have their contact details available.

To target citizens that were not already known from the project's partners, the **ACCEPT project** has used the following to restrict the target group and target citizens:

[3] BRIGHT, deliverable D2.1 "User group needs, req. & advanced DR engagement scenarios", p.48

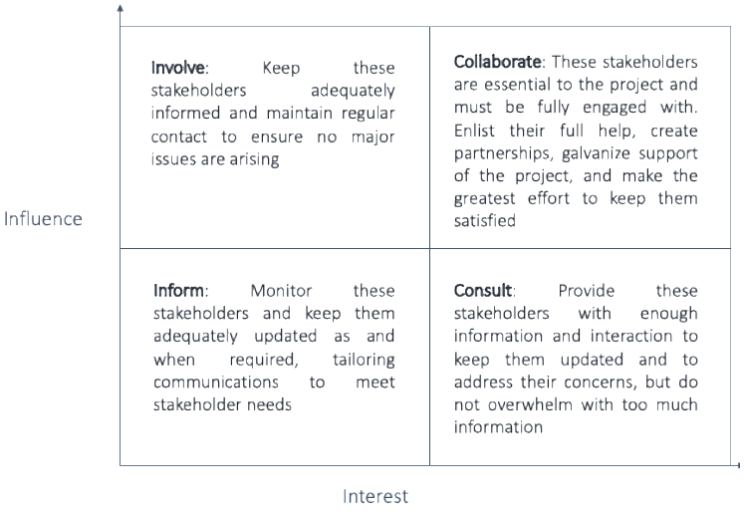


Figure 2: Matrix mapping analysis based on Mendelow - ACCEPT

- **A community stakeholder matrix mapping analysis** based on Mendelow[4] was undertaken to determine the role each stakeholder was going to have. This type of analysis **considers stakeholders along the dimensions of interest and influence**. Interest is related to how motivated the stakeholder would be to participate or follow the project. Influence refers to the extent to which the stakeholder can control or influence factors related to the project's success. Considering stakeholders along these dimensions can guide pilot representatives on what type of engagement activities are required when interacting with stakeholders.

- To enhance the first mapping analysis, **ACCEPT** partners developed a **scoping questionnaire and organised an internal stakeholder mapping workshop** with each pilot partner. Within this workshop, pilot representatives carried out two tasks: (i) firstly, they were asked to **explain why they identified particular stakeholders** as key to the ACCEPT project, (ii) secondly, they were asked to **place each stakeholder on the interest/influence matrix**. As an output of this remote workshop, a collective understanding of each pilot community's anticipated roles of the key stakeholders was achieved.

- Two surveys have then been used to facilitate the engagement of the foreseen 770 citizens in the **ACCEPT** project[5]:
  - A Concept survey: **a survey was created to reach citizens.** Stakeholders that are involved in each of the four pilots were engaged through the survey to promote awareness and knowledge and collect feedback on how the ACCEPT solutions can be developed and understand the perspective and potential concerns related to the ACCEPT services. This survey was distributed through email, individual interviews, phone calls and in-person workshops, depending on the pilot site. The survey was translated into the local language of each pilot site to tackle any language barriers and increase citizen participation in the survey.
  - Ex-ante survey : An ex-ante survey raised awareness on services offered through the project, as well as the minimum technical requirements that citizen households need to meet for participating in the project, and allowed candidate participants to sign up to be part of ACCEPT. Following the collection of responses in the ex-ante survey, audits have been carried out for ensuring the eligibility of citizens and full compliance with technical requirements. The results of these surveys have been analysed by the technical coordination team to assess the eligibility of prosumers to take part in the project.

3.3 Focus on engaging the community rather than individual citizens

Projects such as **Hestia** and **ACCEPT** have found out that citizens are most likely to really **engage in a project if they feel that they are part of a community/collective social units**, rather than being engaged as individuals. **A community engagement strategy, as opposed to stakeholder engagement strategy**, should therefore be

[4] ACCEPT, deliverable D3.7 "Consumer engagement and design validation roadmap", p.12
[5] See the approach to recruitment in ACCEPT, deliverable D3.5 "Report on citizen recruitment activity outcome", p.7

developed, as the community perspective is indeed still an under-developed research field in energy related projects. **Community-oriented actions** and communications ensure a long-lasting users' engagement within the project and the feedback information they are asked for (e.g. weekly e-mails with recommendations). This is due to the users getting a feeling of "being part" of something that extends the boundaries of their individual home and family.

- **Hestia** has developed **a participatory community engagement methodology**[6], framed by the Participatory Design (PD) principles and its counterparts of co-design and co-creation, and having residents' social practices in the centre of the enquiry. The solutions developed in the project are therefore not only targeting the individual residents or the individual households, but their everyday energy-related practices and are also intended to understand and sustain the communities' dynamics. The project's partners found out that the support and involvement of local community stakeholders is really important for the successful implementation of a project.

- **ACCEPT** has noted that one of the greatest barriers to a community formation is the lack of organisational capacity and time available to participants to complete the necessary tasks/participate in the meetings, since this largely relies on volunteers. However, a strong sense of community identity is capable of mobilising citizens to act and may potentially result in the development of more community-oriented interests and a sense of solidarity, with a collective desire to make the community "a better place"[7].

- **Central to the BRIGHT project's vision is the energy communities as a group of energy citizens,** which share some common interest and/or attitudes, and are, in some cases, supported by an existing legal framework[8]. These communities may indeed be engaged to unlock their additional and unique flexibility and accordingly contribute effectively to increase the share of activated demand-response, or for other purposes.

3.4 Understand the social context

Hestia and **BRIGHT** have experienced that **knowledge, competences and interests are context- dependent** and one must understand the practices they are embedded within to target citizens whose contributions will have an impact on the projects. Users already possess different forms of knowledge about everyday life and energy practices. If new knowledge has to be provided to the users and made meaningful and useful to them, it has to build on their existing practices and contexts. Some communities are better prepared than others to tackle challenges of energy consumption due to their economic, organisational and social capital.

- **Hestia has tested the engagement of three different communities**[9] (with different sizes and characteristics) on three different pilot sites. For instance, the Dutch pilot site represented a relatively small community (measured by the number of households) with people who have moved in more or less at the same time as the project and having a similar socio-economic profile. The Italian site, on the other hand, represents a considerable larger community (an entire town) with a much more mixed population measured by socio-economics and demographics. Finally, the French site is an eco-district including both privately owned homes and social housing with more environmentally aware and active citizens. In this way, the three sites represent different types of communities and community building around DR initiatives need to take this into account.

- All three pilot workshops were supported by local partners (such as municipalities, developers and local industrial partners) who put a big effort in **organising the workshops, sometimes as part of wider**

[6] Hestia, deliverable D2.1 "Criteria and guidelines for user recruitment and engagement process", p.16
[7] ACCEPT, deliverable D3.9 "Energy Governance Analysis and typology for communities", p.16
[8] BRIGHT, deliverable D2.1 "User group needs, req. & advanced DR engagement scenarios", p.17
[9] Hestia, deliverable D2.1 "Criteria and guidelines for user recruitment and engagement process", p.31

community events. In Berchidda (Italy) for example, the mayor, who played a central role in the organisation and coordination of the workshop, organised a site-seeing event for the Hestia partners, a welcoming-pre- workshop- lunch as well as an after-workshop dinner for the participants. This embracing of the workshop as a part of the local initiatives (extending further than Hestia), gave local citizens a motivation to be part of it, as well as uniting the citizens toward a common goal (building an energy community).

- It is important to mention that at least two of the three pilots are in their majority represented by affluent, middle-class citizens, who also own their home. There were other groups, such as tenants living in housing associations in Camille Claudel (France) for example, who have not been easy to reach for the workshop (or that have chosen not to participate). However, it is difficult to interpret why the recruitment and overall engagement was sometimes more difficult than in other places. One of the explanations is probably that the recruitment was performed in a challenging period during Covid lockdowns and at a time before the energy crisis hit the general population. Furthermore, energy may not always be the priority in some specific socio-economic contexts.

- In the **BRIGHT project**, different kind of communities have been engaged, all sharing a common goal. For example, in the Business Use Case (BUC) 1, the leader was DuCoop, a **consumer cooperative**. In this case, contrary to what has been seen previsouly, all citizens are therefore already strongly engaged and interested in energy-related topics. **They all own a part of the company** and have a say in the decisions made about their energy. Moreover, they **all live close to each other geographically speaking** (at most 500m apart)[10].

- Finally, in some cases, a project may benefit from the engagement of citizens with very different profiles, that are not directly a community. **The community is therefore formed around a common goal**. This is notably the case in the **BRIGHT BUC4, that sets up three virtual energy communities** with diverse citizens profiles (age, financial, etc.) and cities with various climatic data, allowing the evaluation of different scenarios based on different occupation patterns. **Participation will be enhanced by using the OpenMotics Platform, a software and hardware platform to automate homes, buildings and neighbourhoods[11].**

[10] BRIGHT, deliverable D2.1 "User group needs, req. & advanced DR engagement scenarios", p.26
[11] https://www.openmotics.com/fr/plateforme/?_gl=1*pwhe2i*_ga*MTMxOTgwMTU2MC4xNjg1NDM1NzI0*_up*MQ..

4. How to build a robust commitment of citizens?

Once the citizens are targeted and the project team is ready, it is essential to find the right engagement strategy for your stakeholders. The types of strategies vary based on the type of the project and the role of citizens in it. This section therefore explores the current organisational methods implemented by the selection of BRIDGE projects to ensure the active participation of the citizens.

A more extensive list of smart tools targeting citizens has been explored in its latest report[12] of the BRIDGE working group on Consumer and Citizen engagement, which has also drafted a document "Design Innovation in European Smart Energy Projects" intended as a white paper that covers the aspect of design thinking and innovation.

4.1 Motivate citizens to participate in your project

- **Local authorities and local utility administrators can be involved** as an incentive as in the **ACCEPT** pilot in Switzerland. To achieve the recruitment goals, there has been a focussed effort to involve the utility administrators and municipality at an early stage. Outreach has then begun in the form of an **information letter** which was sent to all citizens in their local language. This letter explained the challenges of the energy transition and the importance of innovation projects such as ACCEPT to address these challenges. An invitation letter requesting attendance to three workshops has then been sent to building owners. As part of the workshop, a Q&A session took place to discuss thoughts and concerns raised by the potential participants. **The more sceptical citizens were approached following the meeting** to discuss the benefits of participating in the Energy Community. In addition to the workshop, **one-to-one meetings** were also held with approximately 60 citizens[13].

- **Pilot site visits** can also be an essential component for developing an engagement roadmap. In **ACCEPT, essential knowledge was gathered from each site visit** that has supported the planning of engagement activities to maximise participation and the uptake of the ACCEPT solutions. All site visits included a tour of the area and interactions through various methodologies with citizens. The information generated was analysed to produce key focus areas which guided the planning of future engagements. Basing community engagement on topics, barriers, motivations and opportunities within a local region means that activities undertaken as part of the engagement roadmap will connect with the culture and context of a community and assist in developing a positive relationship between citizens and the ACCEPT project[14].

- In the 1st Business Use Case of the **BRIGHT** project, partners intended to approach customers through the communication channels of the energy cooperative they were part of (DuCoop): newsletter, platform and the yearly general assembly. **All communications would state that the citizens are participating in a research project**, aimed at gathering their needs, desires, behaviours, preferences, experiences, motivations in relation to demand-response mechanisms. **The added value of participation for the customers was stressed in each communication**.

4.2 Prefer in-person meetings and develop personal contacts with the citizens

- The **Hestia** project encouraged close interactions with the engaged households, **including in person visits to homes**. These home tours were **combined with qualitative semi-structured interviews** during which the

[12] https://op.europa.eu/en/publication-detail/-/publication/43f84f9a-0fe8-11ee-b12e-01aa75ed71a1/language-en/format-PDF/source-288355180
[13] ACCEPT, deliverable D3.5 "Report on citizen recruitment activity outcome", p.12
[14] ACCEPT, deliverable D3.3 "Living Lab activities plan and evaluation report v3", p.24

participants discussed their everyday life at home, including the use of appliances and energy technologies, and the spaces in which they interact with them. Overall, 17 household interactions were conducted across two pilots (8 in Berchidda, Italy, and 9 in Voorhout, the Netherlands)[15].

- In the **Hestia** project, participants were **recruited through personal contact initiated by the pilot partners**, including **telephone calls and reminder email messages**. Participants reacted positively to this personalised attempt to involve them to the project and were happy sharing their experiences of everyday life.

The time and day of the week of organising a workshop is crucial to its success[16]. In the first two pilots of the **Hestia** project (Berchidda and Voorhout), **the workshops were scheduled to take place during an evening of a weekday**. This was considered as a good way to attract people after work, while not disrupting their free leisure or family time. While the attendance was good in both these workshops, it was obvious that family households with children were nearly absent, or represented by only one member of the household. This was due to the difficulty of coordinating daily commitments (such as school and work) with household routines (cooking, dining, putting children to bed).

- The **ACCEPT** pilot in Spain engaged with the members of **an existing cooperative** (La Solar Energia), which facilitated personal contacts. **Most activities undertaken have been done through phone calls, emails and telcos**. 261 of the cooperative's members are already truly interested in the cooperative activities, as they have paid a subscription fee and have the right to participate and vote at general assemblies. They all had therefore already heard of the ACCEPT project through La Solar Energia's regular newsletter[17].

4.3 Be aware of the challenges that can be induced by the citizens personalities

Co-creation activities offer significant benefits as they produce results that are genuinely tailored to the specific needs and circumstances of the individuals being targeted, thereby enabling more sustainable transformations. However, the co-creation process is not always easy to implement: some participants may not be able to actively take part in the discussion/process, when others may take too much space.

- During the co-creation process, **Hestia**'s partners realised that **not everyone can be a co-creator**[18]. Issues of expertise are often encountered during the interactions with users, with some participants desiring to be told what is right to do and how to do it by the professionals involved/project's partners. For example, some participants came to Hestia's workshops because they were interested to know what is the appropriate way to operate things at home with their energy systems for example, in order to benefit themselves, their community and the environment. While there is recognition that the tacit experience of everyday life is valuable, there are still reservations in terms of how to perform certain practices (notably involving technologies) which need to be 'confirmed' by the experts. The workshop animator therefore has to build the confidence of the citizens engaged, for them feel empowered to act in their community.

- Co-creation **can threaten power relationships** between stakeholders of projects. Project organisers of the **Hestia**'s pilots may have feel that the process was sometimes 'slipping' out of their hands. Results of co-creation processes can indeed point to different directions that anticipated, which can cause delays in the programme or change of focus to the project. While there has not been a complete change of focus for Hestia, the fact that users have contributed their insights and desires in issues such as the preferred

[15] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.19
[16] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.43
[17] ACCEPT, deliverable D3.5 "Report on citizen recruitment activity outcome", p.10
[18] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.17

interface with their energy system (which is mobile phone application), might cause unplanned delays in the delivery of the platform, if this was not initially considered.

4.4 Use facilitation techniques to obtain valuable citizens feedbacks

- **In Hestia**, despite the fact that all workshops remained relatively small in size (the largest cohort being 25 participants), **participants were separated into smaller groups**[19] during the different activities. The pilot workshops used this technique **to introduce variety in the agenda** (each smaller group doing a different activity) or to purposefully divide members of the same household to evaluate their perspectives. Furthermore, smaller groups allowed for **a better distribution of genders and age groups**. However, not all pilots used purposefully divided groups. There were also occasions, such as in Berchidda, where **participants chose their table**, with members of their household or neighbours that they were friendly with. This version enabled participants to **feel more familiar and comfortable** with discussions and therefore **contribute with more personal information**. In all cases, small groups allowed for the inclusion of more 'voices' to the collective, some of which might have been more challenging to include in the larger configuration.
- **Hestia** also ran **dedicated women-only focucs groups**(in two out of the three pilots) in order to better understand gendered issues around the control and management of energy technologies at home, and their coordination with other household practices. These sessions enabled a better appreciation of how issues of diversity, accessibility and inclusion can be build into the design of DR platforms.

4.5 Develop toolkits and serious design games to facilitate the exchanges with citizens

Once citizens are interested in the project and willing to actively participate, another challenge is often related to the workshops' facilitation, to ensure that the participants will keep up with the meetings' objectives, provide contributions and take away new knowledge. The different projects studied show that an informal and playful environment, as well as the capacity to translate ideas and concepts in a concrete manner, will allow citizens to feel at ease contribute qualitatively.

- In the Voorhout pilot (NL) from the **Hestia project**, the participants were split into different groups and were presented with two different activities. One group was given energy application prototypes and the other was presented with a 'serious game', about the building of an energy community. **The energy community values game**[20] **seemed like it was a good tool for community-building – allowing people to talk about who they were to each other and what role they wanted or felt ready to adopt in their community**. The participants were presented with seven archetypal energy communities, each of which represented different priorities, such as financial, environment or community/social. Participants had to move forward as a group through different steps, which involved a lot of debates, negotiations and decision making. This game was also very useful for the project's partners, to help them understand what community means for each participant and household, and what were the citizens priorities and possible futures in their local context.

[19] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.45
[20] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.45

Figure 3: Role playing games (DW) in the Voorhout pilot, Hestia project

- In another **Hestia's pilot**, in Camille Claudel, participants were presented with two different probes and toolkits. The first was the 'Green mirror' game[21], which engaged participants in the understanding and exploring of the way they use their household appliances and their everyday energy-related practices at home. The concept of the game was to **allow people to share their experiences in the group, to encourage discussions about their daily energy consumption and to try to make participants 'envision' themselves in a future energy scenario**. The downside of the game was that there was not sufficient time for all players to express their ideas and to contribute to the group. However, the game showed a powerful potential for figuring energy consumption by reflecting on an actual day of the participants' lives (the day before the workshop) and for thinking quickly about essential questions, such as the value of energy, the relationship between production and consumption of energy and the effect of energy storage, amongst others.

- The **ACCEPT** project has used the **persona development methodology**, a methodology first developed for the design of digital environments and here applied to an energy project. User personas are research-based fictional characters, that are modelled from information gathered from real users, to ensure the future user involvement. Personas describe the target group's habits, motivations, needs, frustrations and challenges related to a given service. Creating user personas which provide a profile of a real person provides project partners with a tangible image of an end-user around which they can build their solution. Once the final user persona profiles have been created, a clearer picture of the end user's needs, concerns and motivations related to the energy system, energy behaviours and demand response will become apparent.

- To develop such Personas, **ACCEPT**'s partners have first created a questionnaire to investigate persona profiles within the project's pilot communities[22]. The questionnaire was created in English and translated with the help of the pilot partners into the language of each pilot site. For the structure of the questionnaire, a **mixed methodology was utilised to combine quantitative data analysis with more complex insights gathered through qualitative analyses**, allowing the creation of a highly descriptive and

[21] Developed by Zoe Bonnardot a PhD student at EDF
[22] ACCEPT, deliverable D7.1 « Consumer Validation Report v1", p.13

comprehensive user profile. For the quantitative section of the questionnaire, a mix of multiple choice and Likert scale questions was used to investigate social and psychological factors related to energy behaviour.

Figure 4: Example of a persona - ACCEPT, extract from D7.1

Figure 5: Process to create the personas – ACCEPT, extract from D7.1

One should be mindful that the **creation of design personas is often more of an art than a science** and requires a certain degree of creative interpretation to capture the essence of particular user types. Nevertheless, the exercise of creating and using these profiles can **offer huge benefits in ensuring a user-centric design**.

4.6 Pave the way for the co-creation process' sustainability

- **Sustaining co-creation for long-term results** is a great challenge. **Hestia** aims at developing an evaluation canvas to measure the achievements of the co-creation process in comparison to the expectations set at the beginning of the project. Questions such as what happens when the research project stops and in what ways can communities sustain local initiatives remain relevant and need to be addressed throughout the length of the project.

- **One idea of the Hestia project to ensure sustainability is to integrate the conceptual co-creation with practical co-production**[23]. Indeed, while it is useful to incorporate users' experience in the conceptual framework of a solution's development, it is also important to find ways to practically incorporate them in the actual production of the solutions. If this link between co-creation (design) and co-production is interrupted or not established, there is a risk that conceptual or experiential insights are translated in the actual service (or product) in ways not appropriate or acceptable for users.

- Looking at the **ACCEPT** project and the set-up of energy communities, several factors can increase the chances for sustainability. A number of key drivers have been recognised as commonly accepted motivations for participating in community energy projects, including social, economic, environmental and political factors. One important factor is the **need for individuals taking the leadership** in awareness raising about the need for locally based projects able to contribute to global sustainability and for establishing trust and building good relationships between citizens and local authorities and stakeholders.

- In the **BRIGHT** project, once a group of people that commit to the co-creation process has been formed, specific communication channels are set up, depending on the group preferences[24], to ensure inclusive and long-lasting communication and exchange, with the consortium partners and between the community member, to sustain their engagement. Furthermore, the fact that citizens active in the research have a high chance of meeting each other during daily activities because they live in close proximity to each other can also increase the long-term engagement.

[23] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy", p.10
[24] BRIGHT, deliverable D3.1 « Overview of barriers and drivers for consumer engagement in demand response", P.61

5. How to assess the citizen engagement?

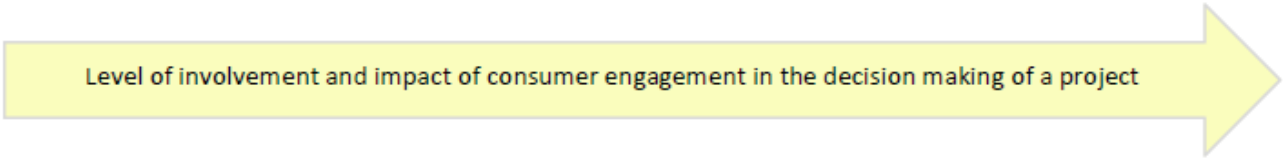
This block addresses the different frameworks and indicators that can be used to validate and assess the engagement of citizens. These activities are indeed necessary to make sure that the process was fruitful both for the project partners and for the participants. It will also facilitate the sustainability of the citizens community engagement and their potential participation in a co-production process. Finally, validating and assessing the citizen engagement will allow the project partners to have a first idea on the potential interest and use of their solutions on the market.

Based on the large experience of its participants and experts, the BRIDGE working group on Consumer and Citizen engagement has established, in its latest report[25], a collection of indicators of engagement as broad as possible. The report provides a list of 61 indicators of engagement grouped in 6 categories and some insights on how to best use this list of indicators.

5.1 Monitor the citizens' involvement

- Most projects evaluate the level of involvement of citizens in their projects through their presence in project events. For example, in the BUC1 of the **BRIGHT** project, the KPI referring to the level of engagement in the use case was "engage min. 10% of the community (+20 residents[26])".

- For the **Hestia** project, the issue of participation in participatory projects is a 'matter of concern' ((Andersen et al. 2015, p. 250)[27], since the details of what participation of users contains are loosely defined in research projects. The involvement of householders during the design and testing of the project's platform, can range between information and consultations sessions, to collaborative events (such as the workshops), which can potentially move the level of participation from the more passive toward a more active and empowering control of the system, as described in the image below[28].



Inform	Consult	Collaborate	Consent	Empower
Provide objective information to stakeholders in order to allow them to understand the issue under investigation, the challenges and possible opportunities for resolving it	Get feedback from stakeholders on the analysis of the tasks performed by researchers and consider their ideas/concerns	Create a partnership with stakeholders in order to discuss and resolve all possible decisions and allow for their input to the maximum extent possible	Respect the decisions of stakeholders in regards to the level of involvement they have chosen in the progress of certain tasks or the overall project	Assign control of the decision making activities to stakeholders

Figure 6: The framework, adapted from UNDP 2020, on which Hestia based the level of involvement of citizens in the project, extract D2.1

[25] https://op.europa.eu/en/publication-detail/-/publication/43f84f9a-0fe8-11ee-b12e-01aa75ed71a1/language-en/format-PDF/source-288355180
[26] BRIGHT, deliverable D2.1 « User group needs, req. & advanced DR engagement scenarios" p.49
[27] http://dx.doi.org/10.1080/15710882.2015.1081246
[28] Hestia, deliverable D2.1 « Criteria and guidelines for user recruitment and engagement process", p.27

5.2 Assess the acceptance and satisfaction

To ensure that future citizens will use the solutions developed by the project, it is recommended to measure the acceptance and satisfaction of the citizens engaged in the projects. This may however be tricky for the projects. Below are presented some examples of how the Bridge projects have assessed their users acceptance.

- The **INVADE** has assessed user acceptance for its use case in Freiburg: it was ensured by personal customer services including **customer visits, phone calls and e-mails**[29]. Three months after commissioning it was indeed planned to survey all participating energy pioneers on their customer satisfaction. Questions regarding market research will be included into the survey and the results will be available until the end of the project. Alongside reporting to the EU on status quo, it is very important to inform the highly intrinsic motivated energy pioneers on the progress of the INVADE project and to understand their point of view. Beside personal updates, the energy pioneers will be invited to workshops, aiming to provide space for open discussion and knowledge exchange.

- The **ACCEPT** project has conducted extensive acceptance and satisfaction surveys in all pilot countries[30], i.e., Spain, Greece, Switzerland and the Netherlands.

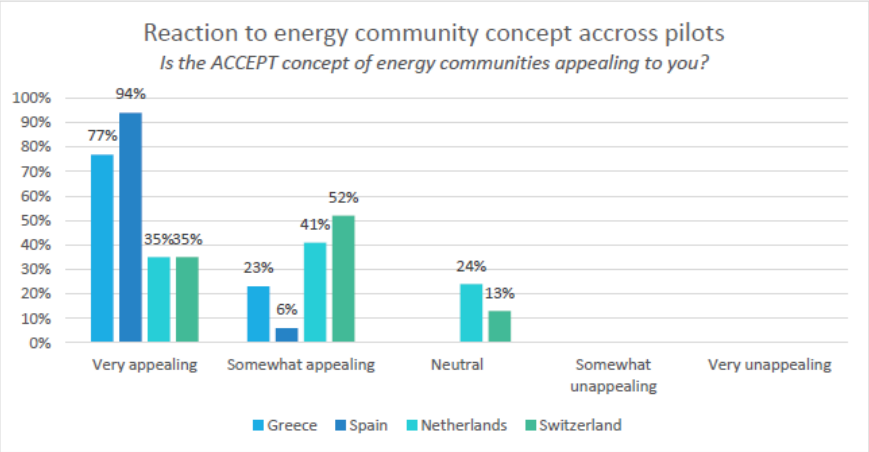


Figure 7: Reactions to ACCEPT concept of energy communities, extract from D7.1

The partners have realised that the respondents found the concept of energy communities appealing, responding either “very appealing” or “somewhat appealing”, which is a promising result for the future. Slight differences exist between the pilot sites: Greece and Spain indicated exceptionally positive attitudes and the Netherlands and Switzerland slightly more neutral ones, even though the overall response in all pilot sites was positive.

[29] INVADE, deliverable D10.4 « First Results from Pilots » p.53
[30] ACCEPT, deliverable D7.1 « Consumer Validation Report v1 » p.14

ACCEPT partners have also assessed the preferred level of involvement in the project's activities of the citizens they had engaged. We can notice that the answers are different depending on the pilot's country. Citizens in Greece and Spain are in majority keen to be actively involved in the project, when Dutch consumers preferred to be only moderately involved, and Swiss preferred to be passively involved. Some of the concerns and barriers for joining the project included lack of information and understanding of the services offered, perceived administrative burden, lack of time, and possible fear of losing control over home devices. The overview on these answers allows partners to adapt the pilot's engagement activities accordingly, to keep the stakeholders engaged and not lose their interest due to overcommunication.

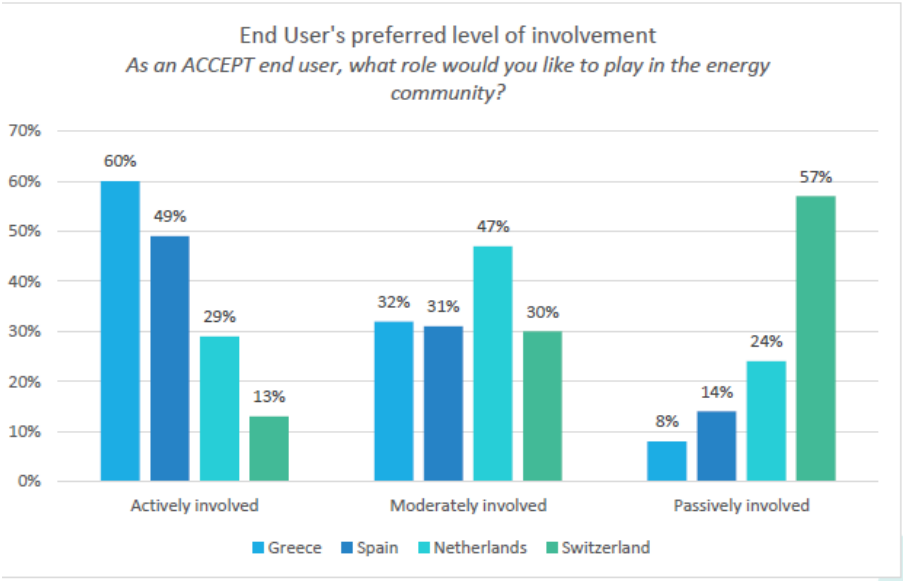
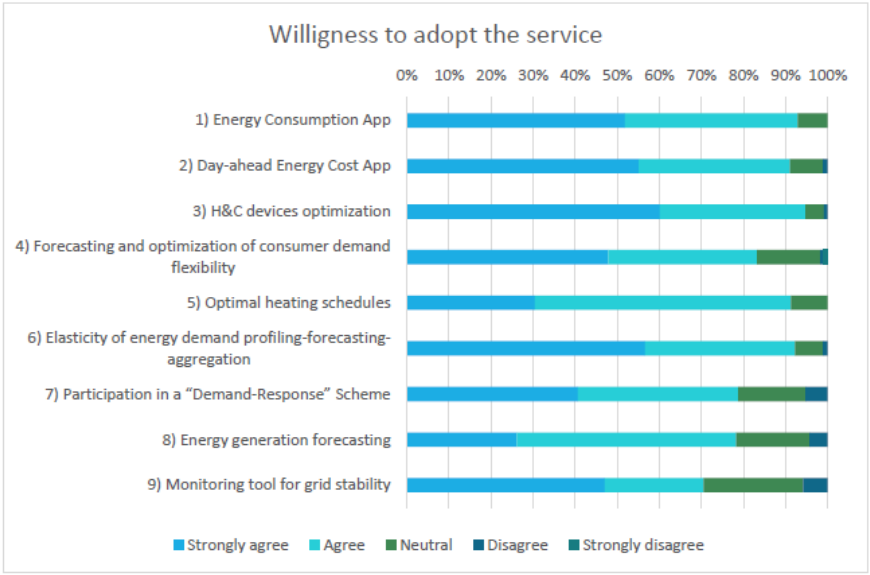


Figure 8: Preferred level of involvement of the citizens in ACCEPT, extract from D7.1



Finally, **ACCEPT** has assessed the willingness of respondents to adopt its services. The respondents found most of the services appealing. Given that differences exist in the services to be tested at different pilot sites, people's reactions towards these services at local level also varied at different pilot sites. Key service elements per pilot site have been summarised in the project's deliverables, followed by recommendations for user-testing and engagement.

Figure 9: Willingness to adopt the services offered by ACCEPT, extract from D7.1

5.3 Know what parameters individually influence your participants to reduce potential bias of interpretation

- **Hestia** demonstrates that, equally to communities, individuals are influenced by their economic, organisational and social capital, age, gender etc. These factors influencing the projects' participants need to be taken into account to limit the risk of bias when assessing the final project results.

- **Hestia** partners notably demonstrated that **gender can largely influence the responds and interests of participants in a workshops/survey** etc[31]. Men and women often have different schedules and activities at home and will therefore express themselves differently. Practices and technologies are also gendered, in the way they are performed in each specific context. When technologies enter homes, they are usually designed with a profile that corresponds to what has been termed the 'Resource Man' (Strengers, 2013)[32], who is a rational, active user who can easily adjust his energy consumption using the gadgets and incentives provided. However, as it has been shown in the pilots, this is not always the case. **The project partners identified that gender, life stage and background are really important in the process of adopting and engaging with energy technologies**. Therefore, they have addressed these issues through the organisation of women-only focus groups in order to understand the coordination of everyday housekeeping with that of the management of energy technologies, in line with gendered roles and responsibilities at home.

[31] Hestia, deliverable D2.2 "Participatory design recommendations & user engagement strategy" p.26
[32] Strengers, Y 2013, Smart Energy Technologies In Everyday Life. Smart Utopia?, Palgrave Macmillan

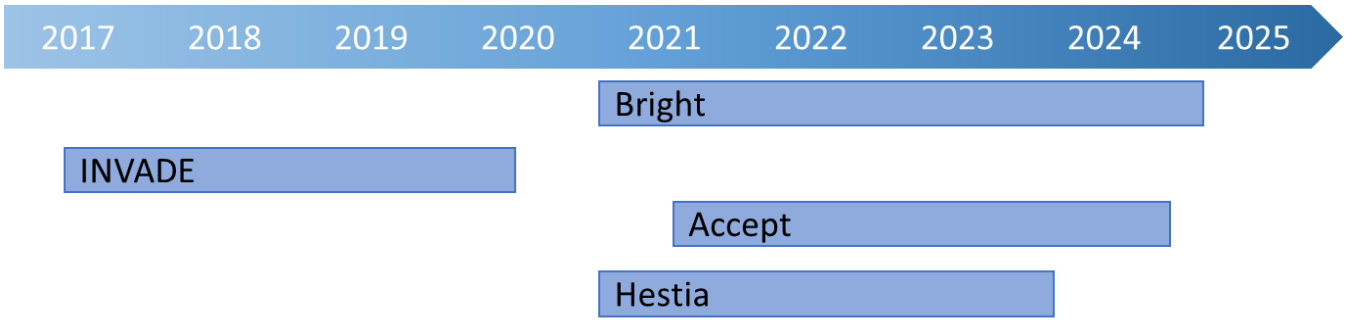
6. KEY TAKE AWAYS

Section 3: Target citizens and prepare your team
• Policies and initiatives should **create narratives of community action**, rather than narratives based on the "smart home utopia" that typically addresses the citizen as a rational and utility-maximising individual.
• If communication is channelled out through a **trusted organisation in the local community**, this can increase engagement with feedback and make it more durable.
• The communication should furthermore **focus on how to take actions**, **including context-tailored tips** and advices on how to reduce or shift energy consumption.
• It is important to have a **good understanding of what groups a community consists of** and try to make ways to represent their experiences during co-creation.
• **Local cohesiveness can be a significant motivating driver,** as research has shown that citizens' willingness to contribute to the community in some way depends on the strength of the social connection they share with the community.
• To ensure the effective involvement of the citizens, the project **partners can be encouraged to define a concrete outcome they can expect from the citizens by the end of the engagement process**, to validate it.
Section 4: Engage citizens on the long-term
• Engage first with personal networks and "**warm experts**" (e.g. major or local personalities) to facilitate the engagement of a community.
• Meet the community and **get to know them personally** through different opportunities: site visits, home visits, phone calls etc.
• Organise in-person workshops in a place and at a time when citizens are available and willing to go. It can be a nice restaurant, a cultural place etc.
• **Make clear that you're not looking for energy expert feedbacks** but rather for personal experience, to make the citizens more comfortable in expressing their views and opinions.
• **Use gamification** to facilitate the participation of all citizens independently of their background.
• **Validation loops on the feedback collected can ensure the group's sustainability**, as the citizens will feel that their feedback is valuable.
Section 5: Assess the citizens engagement
• The **level of involvement** of citizens in a research project is **highly important to monitor,** as they are often expecting more information than true collaboration or empowerment.

• To facilitate the technological scale-up, **acceptance and satisfaction surveys** are interesting tools, to target the right market and upgrade the product to be more accepted by a larger group.
• **Some specific issues**, such as the socio- economic capabilities of different citizen groups and their life commitments, may be **very challenging to integrate in the project outcomes due to individual bias induced by the workshop participants**.

7. References

Timeline of the projects studied:



Projects information

Bridge project	Call	Goal	Website	Coordinator / Contact
Bright	LC-SC3-EC-3-2020 – Consumer engagement and demand response	Maximise the potential of Demand-Response at the consumer level, through the use of blockchain to deliver cross-stakeholder and cross-domain energy fingerprinting services.	https://www.brightproject.eu/	Engineering (Italy)
INVADE	Call: LCE-02-2016 - Demonstration of smart grid, storage and system integration technologies with increasing share of renewables: distribution system	Deliver a Cloud based flexibility management system (with EVs and batteries) to increase renewables share in the smart distribution.	https://www.invadeh2020.eu/	Smart Innovation Norway As (Norway)
ACCEPT	LC-SC3-EC-3-2020 – Consumer engagement and demand response	Digital toolbox with services and revenue streams to support energy communities and their sustainability.	https://www.accept-project.eu/	HYPERTECH (Greece)
Hestia	LC-SC3-EC-3-2020 – Consumer engagement and demand response	Cost-effective solution for the next-generation demand-side response services.	https://hestia-eu.com/	Sinloc (Italy)

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